



OFFICE OF

BUILDING TECHNOLOGY,

STATE AND COMMUNITY PROGRAMS

2001 International Energy Conservation Code

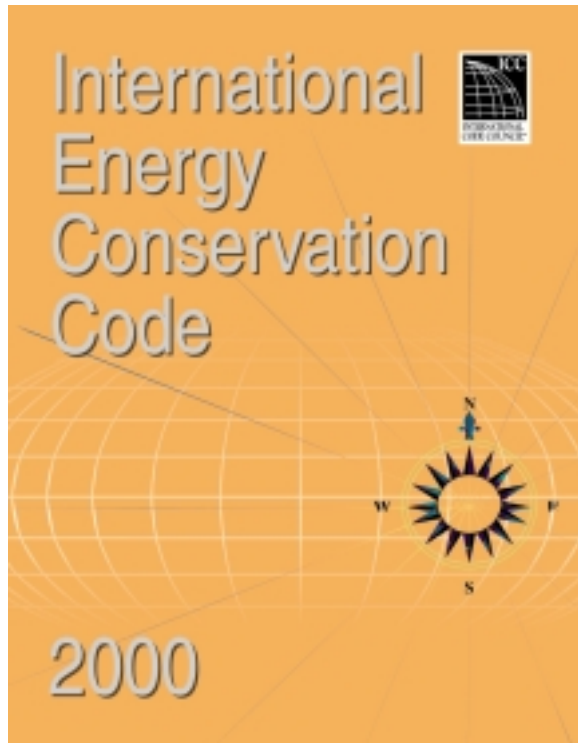
U.S. Department of Energy
Office of Codes and Standards

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Course Outline

- Introduction to IECC
- Residential Provisions
 - Chapter 4
 - Chapter 5
 - Chapter 6
- Commercial Provisions
 - Chapter 7
 - Chapter 8

What is the IECC?



A REQUIRED MINIMUM LEVEL OF ENERGY EFFICIENCY IN NEW CONSTRUCTION

- Enables effective use of energy in new building construction
- Regulates the design and selection of the
 - building envelope
 - mechanical systems
 - electrical systems
 - service water heating systems

Structure of the IECC

- Chapter 1 Administrative & Enforcement
- Chapter 2 Definitions
- Chapter 3 Design Conditions
- Chapter 4 Residential - Systems Analysis
- Chapter 5 Residential - Component Performance
- Chapter 6 Simplified Prescriptive
- Chapter 7 *ASHRAE 90.1* Reference
- Chapter 8 Design by Acceptable Practice for Commercial Buildings
- Chapter 9 Referenced Standards

What is 90.1 (Chapter 7)?

- ASHRAE/IESNA Standard 90.1
- Standard of stringency established by EPA Act '92
- States required to update their nonresidential energy standards to be at least as stringent

Structure of 90.1 (Relevant Sections)

- Section 5 Building Envelope
- Section 6 Heating, Ventilating, and Air-Conditioning
- Section 7 Service Water Heating
- Section 9 Lighting
- Appendix A Assembly U-factor, C-factor, and F-factor determination
- Appendix B Building Envelope Criteria
- Appendix C Trade-off Option
- Appendix D Climate Data

Application

- When does the IECC apply?
 - Newly conditioned space
 - New construction in existing buildings
 - Alterations to existing spaces
 - Additions
 - Mixed use buildings
 - Change in occupancy

Newly Conditioned Space

(Previously Unconditioned)
(*Section 101.4*)

- Envelope, mechanical and lighting systems must be brought into compliance
- Potential problem areas
 - Building envelope
 - Lighting system
- Recommendations
 - Demonstrate compliance for systems at the time of permit

New Construction in Existing Buildings

(Tenant Improvements)

(Section 101.4)

- New system(s) must comply
 - Envelope (should already comply)
 - Mechanical
 - Lighting

Additions

(Section 101.4.2.2)

- Construction of new conditioned space or the conditioning of previously unconditioned space
- Treat the envelope, lighting, and mechanical systems as if the addition were a new building

Additions *(cont'd)*

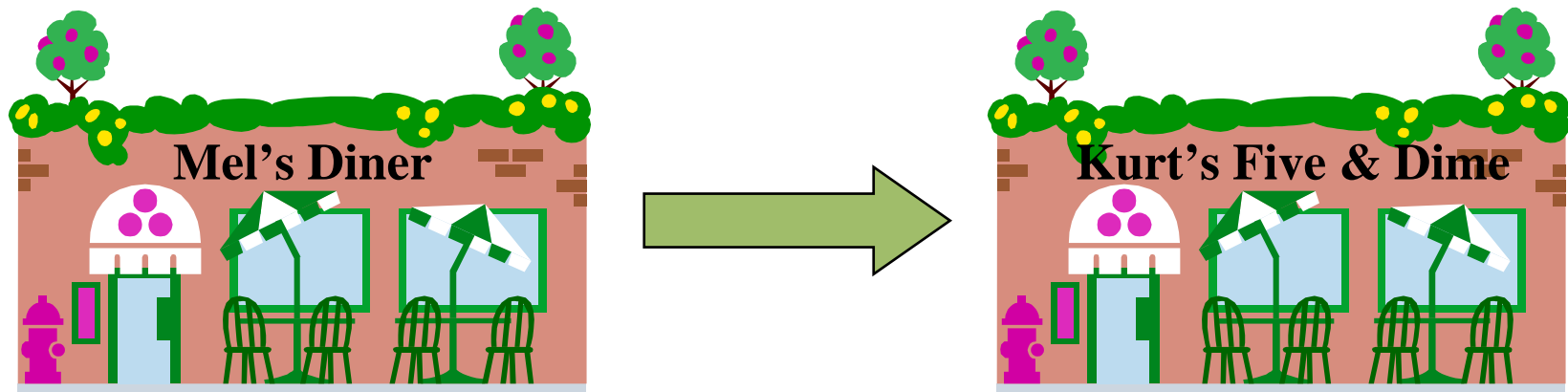
- Compliance options for additions
 - Treat as a stand-alone building
 - Bring entire building into compliance



Change in Occupancy

(Section 101.4.2.4)

- No action is required if alterations are not made to the building systems



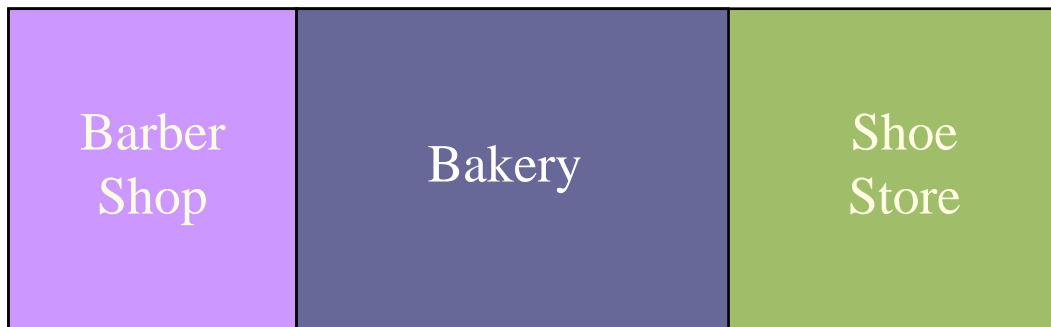
Change In Occupancy

- Alterations to Existing Spaces
- Applies to only portions of the systems being altered
- Applies if alteration increases energy use
- Alterations must meet the requirements applying to the altered component
- New systems in the alterations must comply

Mixed Use Buildings

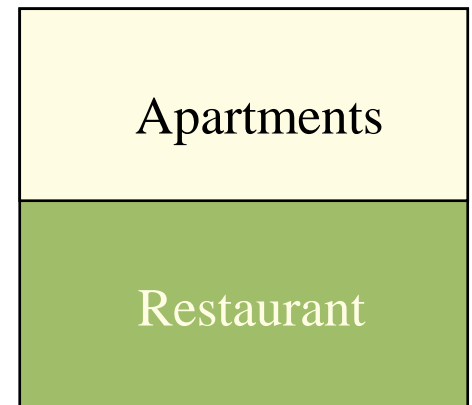
(Section 101.4.3)

- Minor occupancy
 - <10% of floor area
 - Treat as major occupancy
- Different commercial occupancies
 - Treat building under the same compliance process as single occupancy building



Mixed Use Buildings *(cont'd)*

- Hotel/motel and commercial occupancies
 - Treat as Different Commercial Occupancies
- Mixed residential and commercial occupancies
 - Treat the residential occupancy under the applicable residential code
 - Treat the commercial occupancy under the commercial code





Problem

Question

A building owner wants to install a new window in an old building, which will increase the glazing area. Must the building comply with the code?



Exceptions

(Section 101.4.1)

- Very low energy use buildings
(<3.4 Btu/h-ft² or 1 watt/ft²)
- Buildings (or portions of) that are neither heated nor cooled
- Buildings designated as historic
(Section 101.4.2.3)